

## University of Groningen

### Research programme on reproductive health

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## 1. Introduction

The aim of this Research Strategy Paper is to provide an overview of the sub-programme 'Reproductive Health' of the research cluster 'Population, Human Resources and Development' of the Centre for Development Studies (CDS), University of Groningen. The present report is an updated version of an earlier report (Hutter 1998d) about the research programme on reproductive health called **HERA** (HEalthy reproduction: Research for Action). HERA is a cooperation between the Population Research Centre (PRC), University of Groningen, and the Netherlands Interdisciplinary Demographic Institute (NIDI) in The Hague. Both institutes have expertise in conducting research on reproductive health and in September 1996 decided to combine forces and allocate more effort towards the development of expertise and experience in the field of reproductive health. The steering committee of the programme consists of dr. Frank Eelens and Nico van Nimwegen (NIDI), prof. dr. ir. Frans Willekens (PRC) and dr. Inge Hutter (PRC/NIDI). Dr. Inge Hutter is also the programme coordinator.

### 1.1 PRC Groningen

PRC Groningen was established in November 1991. The dominant aspect in the training and research programme of PRC is the micro-perspective: '... demography is defined as the study of life events, their sequence and timing, determinants and impact on the size and the composition of the population ...The occurrence and timing of events ..... are affected by life-course characteristics (biographical context) and the social, cultural, economic, and environmental context in which persons live. ...The emphasis on process, context and individual autonomy is a distinctive feature of the Groningen programme' (Willekens 1990; Populations in transitions 1991). In short, this is called the process-context approach.

Research projects of PRC Groningen focus on the following topics (Willekens 1998):

#### *1. Monitoring of demographic developments*

- a. Demographic changes in Europe
- b. Demographic changes in Russia
- c. Other research on monitoring in countries such as Indonesia, India, Mexico, China

## *2. Fertility behaviour and reproductive health*

- a. Theory
- b. Reproductive health

## *3. Population and environment*

This includes research in co-operation with RIVM (Netherlands Institute of Public Health and the Environment) in India, China and Mexico; and research in Ethiopia (Dr. Markos Ezra).

The present report focuses on the research theme reproductive health.

### **1.2 Reproductive health**

The Cairo International Conference on Population and Development (ICPD) in September 1994 announced a significant change of paradigm in the topic of population and development. Rather than focusing on numbers of people and demographic targets, goals of development are assumed to be reached only if policy and activities emphasize the rights, needs and ambitions of individual men and women. The Conference's Action Programme emphasizes the rights of couples and individuals to decide freely and responsibly whether to have children, when to have them and how many to have. It stresses enlargement of the options to choose between and broadening of the package of services and Information, Education and Communication (IEC) activities.

The concept of reproductive health occupies a central place in this respect.

Reproductive health has been defined as 'the ability of women to pass through the reproductive years and beyond with reproductive choice, dignity and successful childbearing and to be free of gynaecological disease and risk' Zurayck (1994), and implies that people have the ability 'to reproduce, that women can go through pregnancy and child birth safely, and that reproduction is carried out to a successful outcome, i.e. infants survive and grow up healthy. It implies further that people are able to regulate their fertility without risks to their health and that they are safe in having sex' (WHO 1992, p.3).

Reproductive health thus refers to topics like family planning, the causes and consequences of unwanted pregnancies (unmet need for contraceptives, induced abortions), the prevention of sexually transmitted diseases (STDs, AIDS), infertility, sexual health (including e.g. a topic such as female circumcision), child survival and safe motherhood. Special attention is devoted to teenage pregnancies (WHO 1992).

The reproductive health framework thus goes beyond the narrow confines of family planning to encompass all aspects of human sexuality and reproductive health needs during the various stages of women's lives (Sai and Nassim 1989).

The concept of reproductive health marks the shift to women's health for its own sake rather than as an instrument to improve child survival (Dixon-Mueller 1993). The concept also marks a shift towards a more holistic approach (Obermeyer 1995): reproductive health is determined by social and economic development, by life styles, quality and accessibility of health services and by the status of women, but 'more than anything else, by the freedom to make choices' (UNFPA 1995, p.33).

Summarizing, the definition of reproductive health as adopted in Cairo 1994 thus refers to the focus on needs and ambitions of *individuals*, on reproductive *choice*, and on a more *holistic approach* to reproductive health, i.e. individual reproductive behaviour is embedded in the economic, social and cultural *context*.

### 1.3 Process-context approach

HERA's research programme on reproductive health:

i. Adopts the theoretical framework of the *process-context* approach. The process-context approach relates to the definition of reproductive health as formulated at the ICPD. Reproductive health status at a given moment in time is seen as the outcome of a *process* (which can be behavioural but also biological or chance) that involves a series of individual decisions and actions taking place within a social, economic, ecological, cultural *context*. Moreover, present reproductive health status is determined not only by contemporary factors but also by living conditions, events and behavioural factors and patterns of reproductive behaviour in the past. We view reproductive health from a dynamic perspective: in a *life course perspective*, with the reproductive career of women and reproductive events playing a central role; and place it in a historical context (*time*) with the replacement of generations as a major mechanism of change. The process-context approach will be discussed in detail in Section 2.

As stated above, reproductive health includes several topics such as family planning, abortion, safe motherhood and child survival. Most of these topics are included in two well-known demographic models: those of Bongaarts and Potter (1983) on proximate determinants of fertility, and of Mosley and Chen (1984) on child survival in developing countries. Both models formed the basis for data collection in the World Fertility Surveys (WFS), the Demographic and Health

Surveys (DHS), and the National Family and Health Survey (NFHS) in India. The model of Mosley and Chen (1984) has been elaborated by Van Norren and Van Vianen (1986) and used and evaluated by several researchers (Feachem *et al.* 1989; Bicego and Boerma 1991; Hill 1992). A model of reproductive health, including all the topics mentioned above, would combine both the models and add new variables. In viewing reproductive health from a dynamic and life course perspective, such a combined model focuses on the reproductive career of the mother in which reproductive events take place on the one hand, and the child survival career - distinguishing different time periods: childhood, infancy, neonatal and perinatal period - on the other. In short, we call this the model of the mother's reproductive and the child's survival career. A first attempt to construct a model of the mother's reproductive and the child's survival career is discussed in Section 2.5.

The theoretical framework, the process-context approach, and the model of the mother's reproductive and child's survival career, form the basis for most projects in the research programme.

Following the adoption of the process-context approach, HERA's research programme:

ii. applies both *quantitative and qualitative research methods* (see Section 2.7).

In addition, HERA

iii. focuses on reproductive health in developing countries and in countries in transition, thus adopting a *comparative perspective*. By studying reproductive health behaviour in different cultural contexts, the universal aspects of human reproductive behaviour can be discerned from social and cultural aspects.

iv. conducts research in *collaboration* with national institutes in the countries concerned, thus enhancing cooperation and exchange between researchers from different societies.

v. emphasizes the dissemination of results of research, i.e. *research for action*, for example through educational health campaigns in collaboration with local NGOs. The research for action component will be discussed in detail later.

#### **1.4 Research projects**

The research programme includes several projects on reproductive health, all conducted in cooperation with research institutes in the countries concerned. The present Research Strategy Paper deals with on-going research, methodology

applied, research questions and results. Present projects are discussed in detail in Section 3, while possible future activities are discussed in Section 5.

The origin of HERA -that is contents wise- lays in the PhD project “*Nutrition and health of pregnant women in rural South India*” (Hutter 1994) which was conducted in collaboration with Karnatak University’s Department of Anthropology in Dharwad, Karnataka, in the period 1989-1994 (Section 3.1). The present project “*Reproductive health and child spacing in rural South India; contribution to a reorientation of population policies in India*” follows the PhD research. The project is conducted in the same villages, now in cooperation with the Population Research Centre, Institute of Economic Research (IER), Dharwad (Section 3.2). The two projects include several aspects of the process-context approach, the model of the mother’s reproductive and the child’s survival career, adoption of both quantitative and qualitative research methods, and, moreover, the translation of results of scientific research into action in cooperation with local NGOs (see Section 1.5).

The third project “*Reproductive health: theoretical framework on fertility behaviour*” (Section 3.3) is an in-depth elaboration of the process-context approach. It applies the process-context approach in a case study on fertility behaviour and family planning in India, with a link to project 3.2 on child spacing behaviour in rural Karnataka.

As context (economic, social, cultural, political) occupies a central place in our approach, we look at reproductive health from a comparative perspective. Within India, reproductive health in Karnataka (the first two projects) is compared with that in Kerala and Uttar Pradesh. The latter project, “*Reproductive health: an analysis of the NFHS (Kerala, Karnataka and Uttar Pradesh)*” (Section 3.4) focuses predominantly on the model of the mother’s reproductive and the child’s survival career, by analysing data from the National Family and Health Survey (NFHS) conducted in 1992-93. The project on Kerala is conducted in cooperation with the Population Research Centre at the University of Kerala in Thiruvananthapuram, while the project on Karnataka was conducted within the framework of project 3.2, in collaboration with IER in Dharwad.

The proposed project “*Adolescents’ reproductive health in rural Bangladesh*” (Section 3.5) was developed in co-operation with the International Centre for Diarrhoeal Diseases Research, Bangladesh (ICDDR,B) in Dhaka. This project displays several aspects of the reproductive health programme: adoption of process-context approach -emphasizing the life course perspective-, application of both quantitative and qualitative research methods, and a proposed translation

of research into action.

The project on “*Reproductive Health Initiative in Asia; regional dimension*” (Section 3.6) is a EC / UNFPA project in process, in which HERA proposes to contribute to data collection, research and monitoring / evaluation, in cooperation with the London School of Hygiene, Centre for Population Studies.

The project on “*Pregnancy outcomes and child survival in transition*” (Section 3.7) combines aspects of several projects at PRC Groningen (in co-operation with other research institutes), not only those included in HERA such as the projects on reproductive health in Karnataka and Kerala (Sections 3.1, 3.2 and 3.3) but also those by Van der Veen on “Pregnancy outcomes in The Netherlands” and Medina on “Population projections in Mexico”. The research is to be conducted in countries in transition, Mexico and the state Kerala in India.

### **1.5 Research for action**

Research should not only lead to knowledge, this knowledge should in turn be utilized to improve the health status of people. Scientific research thus ‘returns’ something to the people concerned. The translation of research into action implies, for example, the *development of educational material* and the organization of a *health educational campaign* (Section 4.1). Since health education as such is beyond the scope of researchers, we cooperate with local NGOs. In the first research project (Section 3.1), the research results were translated into Kannada, the local language of the Indian state Karnataka. This translation in turn formed the basis for the development of health education material by the local NGO the India Development Service (IDS). The result consists of a series of nine flash cards, one series of photographs, and two puppet shows which are applied by health workers in an educational campaign in the villages concerned.

The basic idea is that if local circumstances and local concepts as used by women themselves are known and referred to, health and nutrition education will be more effective. That is, recognition of the fact that people have their own reasons to do what they do, re-affirming the good habits they have while adding information from the biomedical model, will provide a more solid basis for health education. For example, in the research area in Karnataka, pregnant women believe they should avoid the intake of ‘heating’ items as they would induce an abortion. The concept of heating (and cooling) is related to the traditional medical system Ayurveda. Items classified as heating are, for

example, alcohol, smoking, excessive work and excessive use of allopathic medicines. Items which also the biomedical science indicates is harmful for the fetus. Re-affirming these beliefs of women themselves -although the etiology differs- can make health education more effective. More detailed examples are provided in Section 4.

In the second project (child spacing in rural South India) and fifth project (adolescents' health in rural Bangladesh), where research is still in progress, the results are also to be used in an educational campaign. National and local NGOs are already involved in the stages of research. For more details, see Section 3.

In addition, scientific work in the research programme will be disseminated to developing countries through a *short course on reproductive health* (Section 4.2) which has been developed in cooperation with the Faculty of Medical Sciences' Department of Gynaecology and Obstetrics at Groningen University. Moreover, the outcomes of the programme will be disseminated to the scientific community at large through publications, presentations, seminars, conferences ,etc.

### **1.6 Organization**

HERA involves researchers from the PRC in Groningen and the NIDI in The Hague. The following institutes are involved:

- Faculty of Medical Sciences, Department of Gynaecology and Obstetrics, University of Groningen
- Population Research Centre, Institute of Economic Research (IER), Dharwad, India
- Karnatak University, Dharwad, India
- International Institute for Population Studies (IIPS), Bombay, India
- Population Research Centre (PRC), University of Kerala, Trivandrum, India
- International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Dhaka, Bangladesh
- Demographic Training and Research Center, University of Addis Ababa, Ethiopië
- London School for Hygiene and Tropical Medicine, Centre for Population Studies, Londen



## 2. The process-context approach

The definition of reproductive health, as formulated at the 1994 ICPD in Cairo, refers to the focus on needs and ambitions of *individuals*, on reproductive *choice*, and on a more *holistic approach* to reproductive health, i.e. individual reproductive behaviour as being embedded in the economic, social and cultural *context* in which people live.

The process-context approach of PRC Groningen relates to the definition of reproductive health, as formulated at the ICPD. Summarizing, reproductive health status at a given moment in time is seen as the outcome of a *process* (which can be behavioural but also biological or chance) that involves a series of individual decisions and actions taking place within a social, economic, ecological, cultural *context*. Moreover, reproductive health status is determined not only by contemporary factors but also by living conditions, events and behavioural factors and patterns of reproductive behaviour in the past. We view reproductive health from a dynamic perspective: in a *life course perspective*, with the reproductive career of women and the reproductive events playing a central role; and place it in a historical context (*time*) with the replacement of generations as a major mechanism of change.

The theoretical approach has been worked out in detail by Willekens (1990; 1992) and de Bruijn (1992; 1993; 1998). The framework relates to earlier and recent studies in demography by, among others, McNicoll (1985; 1989; 1994) and Greenhalgh (1989, 1994, 1995). Important additions are the works by North (1994) and Denzau and North (1994) representing new institutional economics and the studies by D'Andrade (1984;1995) and D'Andrade and Strauss (1992) representing cognitive anthropology. The theoretical research line, initiated by Willekens and worked out by De Bruijn, will be continued by Melinda Mills who is currently doing her PhD research at PRC.

The theoretical framework forms the basis for several research projects. For example, on fertility and migration in The Netherlands (Voets 1998), abortion behaviour in Russia (Hutter 1996), fertility change in Ireland (den Draak and Hutter 1996), child spacing behaviour in India (Hutter 1998a), maternal characteristics and child survival in Kerala (Padmadas 1997a), contraceptive and abortion behaviour in Chile (den Draak 1998), and adolescents' health in Bangladesh (Bosch and Hutter 1998). The theoretical framework is described in brief below, illustrated with some examples from the above mentioned applications.

## **2.1 Individual behaviour**

In demography, the dominant method of explanation is statistical association. Differences in behaviour of a group of individuals are 'explained' by differences in background characteristics of these individuals. For example, differences in fertility behaviour of women are 'explained' by differences in their educational status. The causal mechanism underlying the statistical association and producing the relationship between variables, however, remains largely unknown (Willekens 1992). Why, for example, do higher educated women have a lower level of fertility or do they use contraceptives more often? To understand the causal processes ('Verstehen') one has to adopt a micro-approach, i.e. one has to move down to the level of the individual (Smith 1989; Willekens 1990; De Bruijn 1993). Causality should be directly measured by asking about the motives of individuals (Willekens 1992; De Bruijn 1993). McNicoll described this shift in demography -from macro to micro-level- as the shift to the study of 'individual attitudes and behaviour and to what goes on in people's heads' (McNicoll 1985, p.177).

### ***Motivation of behaviour***

How do people decide to act in a certain way? Choice is often seen as rational choice. However, following other authors (Simon 1986; McNicoll 1989; North 1994), we emphasize the subjectivity of decision making. People typically decide and act on incomplete information -and with subjectively derived models- which they derive from the context in which they live. Human behaviour is motivated within this limiting context. Motivations of people can be identified by their goals (D'Andrade 1995), i.e. people are goal-oriented and deploy strategies in an environment of opportunities and constraints (Greenhalgh 1989, p.442).

Many scientists have identified motives for human behaviour. Some of them assume motives to be more or less universal (e.g. Maslow 1970), others (e.g. Rokeach 1973; Lindenberg 1990; Greenhalgh 1988; D'Andrade 1992; 1995) relate motives as well to the context in which people live. For example, D'Andrade (1995) assumes some goals to be more universal (like being healthy, looking for security) but allows for situational variability. Within cognitive anthropology the basic idea is that individual behaviour is the outcome of schemas which function as goals and have motivational force (D'Andrade 1992,1995).

### ***Motivation and schemas***

What is a schema? Schemas 'form the person's internal representation of his/her

environment' (D'Andrade 1992, p.33). It is 'a conceptual structure which makes the identification of objects and events possible. Schemas form the reality-defining system of the human and provide information about what states of the world can be and should be pursued'. Schemas are learned or internalized by people. They are learned as part of socialization, during a person's development (see Holland 1992). In addition, a very important set of schemas are culturally determined.

Some examples will clarify the concept of schemas and how they can instigate individual action. The first example refers to the schema on pregnancy in India. Pregnancy is defined as ('a schema) a process of increasing heat (*ushna*) in the body of the woman. Such an increase in heat throughout pregnancy is considered to be normal, but an excess of heat is believed to induce an abortion. Excess heat can be the result of consumption of food classified as being heating such as papaya. But allopathic medicines, summer heat, sexual relationships and a heating body constitution can also have this heating effect on the body. The classification of several items as 'heating' is related to the traditional medical system Ayurveda. This schema of pregnancy, i.e. the way in which pregnancy is defined, motivates behaviour and instigates actions of individual Indian women. In order to avoid an abortion, pregnant women avoid items which create excess heat or they compensate the heat with cooling (*tampu*) items such as buttermilk and curds. On the other hand, to induce -deliberately- an abortion, extra heat is implemented. For example, papaya seeds are mentioned as a method (Hutter 1994).

Another example is the schema on the beginning of human life. What is the definition of human life? Is human life assumed to start at the time of conception, at forty days after conception as according to Islamic beliefs (Renne 1996) or when women actually feel the baby moving in their body (Hutter 1994)? The schema which is adopted by a person will determine whether and when induced abortion is seen as killing a human being and will guide actual individual abortion behaviour.

Similarly, the definition of menstruation (schema) in India as being polluting guides the individual behaviour of women during their menses. In more orthodox families, menstruating women -because they are polluting- are not allowed to enter the kitchen, they eat separately, and they are not supposed to touch children as this will have a negative effect on their health. The pollution is removed only after taking a headbath at the end of the period (Hutter 1994).

These examples not only make clear what a schema is and how it can instigate action, they also indicate that individual cultural schemas (at the micro-level) are imbedded in the cultural meanings system of a society at large (at the macro-level). Moreover, the importance of the social context becomes clear. Human motivation is only realized in social interaction (Strauss 1992, p.1). D'Andrade (1992, p.38) emphasizes this by stating that 'It may well be the case that most goals lose their motivational force without the support of significant others'. Significant others or important others are people in an individual's direct environment who play an important role in his or her (decision making) behaviour.

Motivation is often considered as a process of 'thinking'. However, emotions and feelings are also involved (Rokeach 1973; D'Andrade 1995; Strauss 1992).

### ***Attitudes and behaviour***

Motivations for behaviour can thus often be identified by goals, or values or end-states as Rokeach (1973) called them. The latter author identified a third level between values (or motivation) and behaviour, i.e. that of attitudes. Values are seen as the determinants of attitudes and behaviour.

Values refer to single beliefs which transcend objects and situations. Values thus are more general. Attitudes refer to the organization of several beliefs around a specific object or situation (Rokeach 1973).

The relationship between attitude and behaviour, in turn, has been worked out in detail in the theory of reasoned action by Ajzen and Fishbein (1980), a value expectancy theory, where human beings are assumed to consider the consequences of their behaviour before they actually perform it. Motivational factors influencing a particular behaviour are captured by the intention to perform that particular behaviour (Ajzen 1992, p.181). The intention to perform a particular behaviour is determined by the relative weight of attitudinal and normative considerations. *Attitudes* are determined by beliefs about the consequences of that particular behaviour and the evaluation of these consequences. Normative considerations consist of the *subjective norm* of an individual, i.e. the perceptions of social pressure put on him or her to perform or not to perform the behaviour (Ajzen and Fishbein 1980, p.6). The subjective norm is determined by perceived beliefs of important others and motivation to comply to these others.

The theory of Ajzen and Fishbein thus explicitly incorporates the influence of the immediate social context on individual behaviour.

An example, referring to the behaviour of (not) eating papaya during pregnancy in India (see also the example above to clarify the concept of a schema). An Indian woman believes the consequence of eating papaya during pregnancy is 'being healthy' which she evaluates positively. In addition, she thinks that her husband too believes that the intake of papaya during pregnancy is healthy. Her parents-in-law, however, -as she thinks- strongly believe that intake of papaya will lead to an induced abortion (for the underlying schema, see above). In case this woman is very motivated to comply to her parents-in-law, which in the Indian context is not unthinkable, her intention might be not to eat papaya during pregnancy. If she is more motivated to comply to her husband, however, she might intend and actually eat papaya.

In an extension, the theory of planned behaviour, Ajzen added *perceived behavioural control* (a concept comparable with perceived self-efficacy of Bandura 1982), which consists of 'people's perceptions of the ease or difficulty of performing the behaviour of interest' (Ajzen 1992, p.183). A particular behaviour is determined by the intention to perform behaviour (motivation) *and* the perceived behavioural control (ability). This means that people's behaviour is strongly influenced by their confidence in their ability to perform it. Intention is thus determined by attitudinal and normative considerations (see above) *and* perceived behavioural control.

Perceived behavioural control is determined, like attitudes (determined by behavioural beliefs) and subjective norm (determined by normative beliefs), by beliefs, i.e. control beliefs. These control beliefs may 'partly be based on past experience with the behaviour (thus to be seen in historical time and over the life course) but they will usually also be influenced by second-hand information about the behaviour, by the experiences of acquaintances and friends, and by other factors' (Ajzen 1992, p.196).

Past experiences with the particular behaviour are mentioned as the most important factors affecting perceived behavioural control (see also Bandura 1986).

Again an example. The Indian woman, as described in the earlier examples,

believes that she is not able to eat a papaya during pregnancy: papayas are not available throughout the year (which she knows since childhood), and *if* they are available at the market they are too costly (which she knows by talking to her neighbours). The perceived behavioural control thus might lead to an intention not to eat papaya during pregnancy.

In this way, perceived behavioural control relates to the *constraints or facilitating factors* to show a particular behaviour. For example, the non-availability of papaya during certain seasons.

Summarizing, attitudes are determined by behavioural *beliefs*, subjective norm by normative *beliefs*, and perceived behavioural control by control *beliefs*. Schemas consist of perceptions and beliefs of what the world looks like, how it is defined (we could accordingly classify it as definition *beliefs*). Consequently, we could identify it as an individual belief system or individual explanatory model which behavioural, normative, control and definition aspects (Hutter and Willekens 1998).

## **2.2 Context**

People typically decide and act on incomplete information which they derive from the context in which they live. This is a hierarchical multi-level context (Willekens 1992; De Bruijn 1993) and includes the *ecological and economic context* (facilitating and inhibiting factors for behaviour), the social context (the immediate environment, institutions) and the cultural context (the cultural meaning system).

### ***Immediate social context and social status***

The immediate social context in which people live is assumed to play a crucial role as most people 'are more inclined to gather information in their immediate environment rather than elsewhere and will sooner consult sources of information which are easily accessible ...' (Willekens 1990, p.13-14; Willekens 1992, p.270). The way in which significant others affect individuals' behaviour is captured in the subjective norm of Ajzen and Fishbein (1980).

The status of an individual and her or his relationships with other people (either in the immediate context or in the macro-context) vary over the life course and are defined within society. What (social) status is ascribed to a person, what roles she or he is expected to play, what actions are considered to be proper for her or him, what kind of relationships can she or he establish, etc. are determined by the cultural meaning system and reinforced by norms and rules in the society.

An example from the project on adolescents' health in rural Bangladesh (Bosch and Hutter 1998). In general, adolescence is defined as the period between 10 and 19 years of age. In Bangladesh, however, adolescence seems to be shorter for girls than for boys. Bangladeshi girls are expected to learn the female role even before the end of childhood. The pre-adolescence stage is distinguished more for girls than for boys because 'of the importance of the girl's behaviour during adolescence to the reputation of herself and her family' (Aziz and Maloney 1985, p.48). A Bangladeshi girl in her pre-adolescent period is asked to learn to observe *purdah* and to cover her head in the presence of older men. Later in the life course, in early-adolescence, a girl should attend to domestic chores, may not go out alone at night unless accompanied by an older woman, is not supposed to raise her voice, should talk softly and move politely. The only rule mentioned for boys in this same period is that they are expected to learn farming tasks or other work (Aziz and Maloney 1985, p.48-49).

At the macro-level, information on which individuals base their decisions and action is situated in institutions and culture as a meaning giving system (McNicoll 1985; Schotter 1986 cited by Willekens 1992; Willekens 1992; De Bruijn 1993; North 1994).

### ***Institutions***

Institutions can be defined as 'clusters of behavioural rules governing human actions and relationships in recurrent situations' (McNicoll 1994, p. 4-5). These rules are shared by a group of people, and thus are public, and violations are counteracted with sanctions, either by an external authority or self-imposed. Social pressure and social control motivate people to adapt to the rules (McNicoll 1994). Institutions are provided with both material and cultural antecedents. That is, institutions are created by people 'to deal with recurrent problems about material realities .... i.e. institutions emerge from individual-level transactions' (McNicoll 1994, p.6). But institutions are also related to the cultural meaning system in the sense that they are 'manifestations of ideational systems that give some degree of coherence in the cultural domain of symbol and belief' (McNicoll 1994, p.6).

North (1994), similarly embedding individual (economic) decision making within institutions and belief systems, defines institutions as 'humanly devised constraints that structure human interaction. They are made up of formal constraints (rules, laws, constitutions), informal constraints (norms, conventions, codes of conduct), and their enforcement characteristics' (North 1994, p. 366). Rules might be changed, but informal constraints change only gradually.

With respect to reproductive health behaviour, institutions may provide specific information, in the form of health education or Information Education Communication (IEC) activities. This information is thus purposefully supplied to people in order to change their present attitudes and behaviour. In studying how this specific information affects individual (reproductive health) behaviour, the matrix of McGuire (1985) is highly relevant. It distinguishes the source of information (who is delivering the message), the contents of the message (what is told), the channel of communication (e.g. newspapers, television) and the receiver (who does the education address, the target-group). For example, in the child spacing project in rural South India, the matrix is applied in mapping the information on reproductive health and temporary family planning methods which is provided by two institutions, i.e. the (governmental) Department of Family Welfare and the NGO, the Family Planning Association of India (FPAI) (Goudberg 1998).

### ***(Cultural) meaning systems***

Here culture is defined as a cultural meaning system through which people adapt to their environment and structure interpersonal activities (D'Andrade 1984, p.116). Four functions of a cultural meaning system can be distinguished. A cultural meaning system has:

- i a representational function, i.e. it defines the knowledge and beliefs about the world (what counts as what);
- ii a constructive function, i.e. it creates cultural entities that people adhere to;
- iii a directive function, i.e. it directs behaviour through social pressure and external sanctions but also by intrinsic motivation to conform;
- iv an evocative function, i.e. it evokes certain feelings (D'Andrade 1984, p. 92-97).

Cultural meaning systems are -for example- not only religious meaning systems, but also political meaning systems or ideologies. In short, any value system.

Meaning systems are related to institutions by their directive function and normative properties and sanctions (D'Andrade 1992, p.34). How does the cultural meaning system -at macro- level- relate to the cultural schemas instigating action at the individual -i.e. micro- level? A cultural meaning system consists of the cultural schemas which are shared by a group of people. In other words, the cultural schemas at the individual level are imbedded in cultural models, which are 'shared cognitive schemas through which human realities are constructed' (Strauss 1992, p.1).



We treat culture as a dynamic concept, just as North (1994) does by adding the time component. Distinguishing a belief system, which determines the choices people make, he defines it as, 'a consequence of learning through time-not just the span of an individual's life or a generation of a society- but the learning embodied in individuals, groups and societies that is cumulative through time and passed intergenerationally by the culture of a society' (North 1994, p.360).

### **2.3 Interaction between individual and context**

We thus situate individual behaviour within a multi-hierarchical context. How do the two interact? Evidently, there is interdependency of the individual and the context in which he or she lives. Individual behaviour is determined by the context. The stronger the relationships between a particular meaning system and the institutional context, particularly when they become manifest in formal constraints (laws, rules and constitutions) and are reinforced by social pressure and sanctions, the stronger their influence can be on individual behaviour.

Some examples. The political ideology of the former USSR (a meaning system as any religious system), represented in the institutions of the communist party and government and manifest in the legalization of induced abortion and the prohibition of distribution and use of oral contraceptives, strongly guided abortion and contraceptive behaviour of individual Russian women (Hutter 1996). Similarly, abortion and contraceptive behaviour of Irish women has been strongly determined by Catholicism and the Irish church. Irish Catholicism not only invaded Irish law and policy making -laws on contraceptives and abortion are very strict- reflected in the heavy sanctions for breaking the rules -people were arrested for ordering or selling contraceptives- it was also strongly related to other institutions such as educational and social services (Den Draak and Hutter 1996).

These examples show how individual behaviour is determined by the institutional and cultural context. However, individuals are not only passive: they are also active and shape and try to change institutions and culture. In other words, although individual behaviour is indeed governed by laws, rules, norms and values, individuals are also active and shape institutions and culture (De Bruijn 1993; McNicoll 1994; Greenhalgh 1994). Moreover, individuals do not just follow the regulations, they also try to *change* the constraints imposed by institutions and the cultural meaning system: they are not just submissive but also try to manipulate information from the context (Strauss 1992, p. 13).

## **2.4 Historical time, life course and careers**

We view reproductive health from a dynamic perspective, placing it in a historical context (*time*) with the replacement of generations as a major mechanism of change; and in a *life course perspective*, with the reproductive career of women and the reproductive events playing a central role.

### ***Historical time***

Contextual variables like economic and ecological circumstances, institutions and cultural meaning systems change and evolve over time, affecting individual decision making and individual behaviour. Reproductive behaviour itself evolves over time and generations: it differs, for example, between younger and older cohorts of Russian women (Hutter 1996).

### ***Life course and careers***

A person's present decision making processes and behaviour has to be understood within the context of past behaviour: former experiences, expectations and circumstances in earlier stages of the life course (Erikson 1980 cited by Willekens 1989; Greenhalgh 1994; Carter 1996 cited by Greenhalgh 1995). Schemas, which function as goals and instigate action, are learned as part of socialization, over the life course. In the context of social interaction, an individual internalizes cultural models, language, symbols as means to organize and control his or her thoughts and emotions.

The life course can be defined as 'the sequence of events and experiences in a life from birth until death and the chain of personal states and encountered situations which influence and are influenced by this sequence of events' (Runyan 1984, p.82). States commonly defined as stages of development are infancy, childhood, adolescence and adulthood.

In adopting a life course perspective, the research project in Bangladesh views the reproductive health status of women as being partly determined by their health status in adolescence and childhood. Adolescence is seen as a transition period between childhood and adulthood: adolescents slowly learn and internalize the role they are to play as an adult. For example, what is the proper behaviour for women and what for men, which kind of relationships may be established with others? Adolescents thus learn the schemas, many of them culturally defined, which are valid and appropriate in this stage of life, i.e. adolescence, and in the future, i.e. adulthood.

Within the life course, life events occur. Studying reproductive health from the

life course perspective, we study the reproductive period, starting with menarche and ending with menopause, with important life events such as marriage (or start of sexual relations), pregnancies and outcomes of these pregnancies (live birth, still birth, spontaneous abortion, induced abortion). These life events are universal, but are 'situated' in the context. For example, when these events are celebrated as transition rites, this is done in the way that is particular to that society.

Adopting the life course perspective, women follow a particular *reproductive career*. A career is 'the chain of stable and transition periods pertaining to a given domain' (Willekens 1989, p.8). A career is 'a route to goal achievement. It is, therefore, not only a sequence of events and stages, but it is a goal directed or purposive sequence'. Careers can be associated with each attribute or characteristic of a person that changes over the life time (Willekens 1989). The reproductive career of women can thus be related to their family building career, their marriage career, their educational career, their job career, etc.

Figure 2.1 summarizes the factors included in the theoretical framework for the study of reproductive health behaviour.

## **2.5 A model of reproductive health: mother's reproductive and child's survival career**

As mentioned above, reproductive health encompasses to topics like family planning, the causes and effects of unwanted pregnancies (unmet need for contraceptives, induced abortions), the prevention of sexually transmitted diseases (STDs, AIDS), infertility, sexual health (e.g. female circumcision), child survival and safe motherhood. Demography incorporates most of these reproductive health aspects in two well-known conceptual models. These models formed the basis for the World Fertility Surveys (WFS), the Demographic Health Surveys (DHS), conducted in about 40 developing countries, and the National Family and Health Survey (NFHS) in India (1992/93):

1. Bongaarts and Potter's (1983) fertility model, in which proximate determinants the most important being age at marriage, induced and spontaneous abortions, use of contraceptive methods and duration of post-partum infecundability- affect fertility directly. Socio-economic, cultural and environmental factors can only affect fertility through these proximate determinants.

Figure 2.1 **The process-context approach of reproductive health.**

Mosley and Chen's model (1984) on child survival in developing countries. This was elaborated by Van Norren and Van Vianen (1986) in their model on the malnutrition-infections syndrome and its demographic outcome. Their model has been used and evaluated by several researchers (Feachem *et al.* 1989; Bicego and Boerma 1991; Hill 1992). In their model, five groups of proximate determinants affect the malnutrition-infections syndrome through four purely biological risk factors (physical constitution at birth, exposure to infectious agents, susceptibility to infection and nutritional intake).

A model of reproductive health, including the different topics mentioned above, would combine both the models and add some new variables. A first attempt to construct such a model is described below (see Figure 2.2). Van Norren and Van Vianen's model on the malnutrition-infection syndrome and child mortality is more complex than the Bongaarts model. This complexity can be reduced by including the time component (dynamic) and discerning different time periods, each displaying its own morbidity and mortality pattern: the perinatal period, neonatal period, infancy and childhood (see e.g. Barnum and Barlow 1984; De Vries 1992; Hutter 1994). As far as fertility is concerned, the model is dynamic as it looks, for example, at birth intervals and their constituting proximate determinants, and at contraceptive use dynamics.

The model thus distinguishes:

- i) the reproductive career of the mother in which reproductive events take place and the proximate determinants of fertility, as indicated by Bongaarts and Potter (1983). Regarding contraceptive use, we distinguish the different stages of acceptance, continuation and discontinuation of methods.
- ii) the child survival career, proximate determinants and risk factors as indicated by Van Norren and Van Vianen (1986), thereby distinguishing different time periods (childhood, infancy, neonatal and perinatal periods), each with its own morbidity pattern. For example, weaning is a factor which plays a role only four to six months after birth, breastfeeding is important immediately from birth onwards.

In the stage of *pregnancy*, the mother's reproductive career and the child's survival career interact. Safe motherhood plays an important part in this period. Van Norren and Van Vianen (1986) indeed identified a proximate determinant 'constitutive variable', including maternal factors during pregnancy affecting the constitution at birth of the child.

It consisted of the reproductive pattern (age, parity and birth interval), food supplementation and immunization of the pregnant woman.

Present trends in child survival careers in developing countries show a gradual decline in child mortality and a relative increase in the importance of perinatal and neonatal mortality. Etiology thus shifts from environmental factors affecting child mortality towards factors affecting morbidity and survival very early on in life. In addition to the circumstances during birth, breastfeeding, ARI (Acute Respiratory Infections) and newborn care- maternal factors (during and before pregnancy) increasingly appear to play a role.

Based on predominantly medical literature (e.g. Kramer 1987), more maternal factors affecting child survival have been added to the model: nutritional intake (rather than only food supplementation), energy expenditure (physical activities), nutritional status (e.g. weight gain, skinfolds) and morbidity (e.g. malaria) during pregnancy. Besides these factors, which play a role during pregnancy, pre-pregnancy nutritional status also plays an important role (see e.g. Hutter 1994). Our model therefore also distinguishes a *prepregnancy* stage, including age, parity, birth interval, a previous history of the mother's prematurity and spontaneous abortion, nutritional status (height / weight) and anaemia.

iii) the woman's health career; this views women's health for its own sake rather than as an instrument to improve child survival (see also Dixon-Mueller 1993). This career, includes matters like adolescent health, health and nutritional status of women, and factors like STDs and RTIs (Reproductive Tract Infections). The model of the mother's reproductive career and the child's survival career is part of the process-context approach, presented above. A first attempt to integrate theory and model further is presented in Hutter and Willekens (1998).

## **2.6 Research methodology**

Adopting the process-context approach to reproductive health and the model of mother's reproductive career and child's survival career, implies a combination of research methods.

### ***Qualitative research and small scale surveys***

The focus on *individual* needs and ambitions, on reproductive *choice*, on a more *holistic approach* to reproductive health in which individual reproductive behaviour is embedded in the economic, social and cultural *context*) requires the application of small-scale research methods such as participant observation, in-depth interviews, focus group interviews and key informant interviews.

Figure 2.2 *Model of the mother's reproductive career and the child's survival career* The model also includes a third dimension:

Besides these qualitative research methods, small-scale censuses and surveys are conducted. The combination of quantitative (focusing on factual data) and qualitative methods (giving insight into the processes, the underlying mechanisms, the perceptions and beliefs) has an added value. If researchers use only quantitative methods, they are left with a lack of insight into the underlying mechanisms of reproductive behaviour. On the other hand, research based only on qualitative methods results in a lack of knowledge about the factual level of reproductive health (for example: what is the actual food intake during pregnancy, what is the actual length of birth intervals?). Within demography, these research methods are applied in the so-called 'micro-approaches to demographic research' as developed by, among others, Caldwell, Hill and Hull (1988).

The combination of quantitative and qualitative research methods recurs in the various research projects. The 1989-1994 project in India, for example, focused on factual data of nutritional intake and weight gain of 186 women and the birth weight of their children, *and* on perceptions of Indian women themselves regarding proper nutrition and health behaviour during pregnancy, delivery and the neonatal period. The project on child spacing behaviour collects factual data on birth intervals *and* perceptions of spacing. In the Bangladesh project, factual data on adolescent health as well as data on aspirations and expectations of adolescents will be gathered.

### ***Quantitative research: analysis of large scale surveys***

For the model of the mother's reproductive and child's survival career, analysis of secondary data is important. The following data sets are analyzed:

- the Demographic and Health Surveys (DHS);
- the National Family and Health Survey (NFHS) of India (based on DHS).

In addition to descriptive statistical analysis and traditional multi-variate analysis, *event history analysis* are applied (see in Hutter and Willekens 1998).



### 3 Research projects in the research programme

#### 3.1 Nutrition and health of pregnant women in rural South India: dissemination of results

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<i>Co-operation:</i>	PRC Groningen
<i>Research:</i>	Karnatak University, Dept. of Anthropology, Dharwad Prof. dr. P.V. Mahale
<i>Action:</i>	Mrs. Nandita Mudbidri (popular English version) Ms. Meera Bijapur, Mrs. Pratibha Ritti (Kannada translation) Mr. P.R. Acharya, Dharwad (coordinator Kannada translation) India Development Service (IDS), Dharwad (educational material)
Funding (action):	Ministry of Foreign Affairs, The Hague
Main researcher:	Dr. Inge Hutter
Period:	<i>research:</i> May 1989 - October 1994 <i>dissemination:</i> October 1996 - August 1998 <i>campaign:</i> November 97 - November 99

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The origin of HERA -contents wise- lays in the PhD research on nutrition and health of pregnant women in rural South India, which was conducted in the period 1989-1994. The longitudinal research on nutrition and health of pregnant women included a fieldwork period of almost two years in eleven villages in Dharwad *taluka*, Karnataka, India, and was conducted in cooperation with a team of Indian research assistants and counterparts (nutritionists). Local guidance was provided by Karnatak University's Department of Anthropology, in the person of prof. dr. P.V. Mahale. Results are presented in the dissertation 'Being pregnant in rural South India; nutrition of women and well-being of children', Thesis Publishers, Amsterdam (1994).

The present focus of the project is on the dissemination of results. Before discussing this dissemination, however, let us first give a short description of the research.

#### **Short summary of the study:**

In May 1993, the World Health Assembly adopted a resolution on maternal and child health, and family planning for health, emphasizing the 'elimination of harmful traditional practices and other social and behavioral obstacles affecting the health of women, children and adolescents'. It decries the persistence of

practices ‘such as child marriages, *dietary limitations during pregnancy* and female genital mutilation’ and states that ‘such practices restrict the attainment of the goals of health, development and human rights for all members of society’ (ESCAP 1993). This resolution comprises the main research questions of the research project, which focuses on mother and child health in rural South India and dietary limitations during pregnancy.

## **Background**

It is a common custom in developing countries to reduce food intake during pregnancy, especially in the last trimester. Among other countries, this custom has been reported in Kenya, Oman, Ethiopia, Sudan, Iran, Somalia and India. Nineteenth century European women also tended to lower their food intake during pregnancy. The literature generally states that the reason behind this custom is that women hope to have a small child and thus an easy delivery. Such a reduction in food intake contradicts international standards which recommend pregnant women to eat more than normal throughout pregnancy, i.e. an extra 285 kcalories per day.

## **Research questions**

Although the custom has been reported in several developing countries, there is not much quantitative evidence of a reduction in food intake during the last trimester of pregnancy. In the research project, the first research question was formulated and specified as:

- Can the reported reduction in food intake during the last trimester of pregnancy be confirmed by quantitative data on food intake?
- To what extent is food intake during the last trimester of pregnancy reduced?
- Do all women lower food intake during the last trimester of pregnancy or is the custom only practiced by a particular group?

Moreover, the nutritional status of most Indian women is poor even before pregnancy. This is not only due to poverty, but also to the status of women in Indian society. In general, girls receive less food than boys and women take their meals only after all other family members have finished theirs. In this research project we wondered what would happen if these women, whose nutritional status is already poor before conception, lower their food intake in the last trimester of pregnancy. In the research project, the second research question was:

- What are the effects of a reduction in food intake during the last trimester of pregnancy among women whose nutritional status is already poor before conception on the women’s health and on the pregnancy outcome?

As mentioned above, the most commonly quoted reason for reducing food intake during the last trimester is that women hope to have a small child and thus an easy delivery. Some studies, however, go beyond this simple explanation and give an inventory of other, more complex, reasons. In the research project, the third research question was:

- What are the reasons behind the custom of reduction in food intake in the last trimester of pregnancy, as perceived by Indian women themselves?

### **Methodology**

A longitudinal study was conducted in eleven villages in Dharwad Taluka, Karnataka, India, following 186 women throughout their pregnancy up to one month after delivery. Surveys (on pregnancy histories, food intake, weight gain, height, use of antenatal services, etc.) as well as in-depth interviews (e.g. on beliefs about food and health behaviour during pregnancy) and key informant interviews (e.g. on the role of health services) were conducted. The researchers learned to speak Kannada, the local language.

### **Study population**

The study population of 186 women can be characterized as poor, only 10.8 per cent (n'20) were relatively well-off. The level of literacy was very low. Most women (81.9 per cent) had not received any formal education at all. Of those who had, over half completed only standard four or lower. The majority of the study population were Hindus of various castes (86.0 per cent), 10.2 per cent were Muslims, the remainder belonged to the Gouli tribal people. The study population was young: most women (65.4 per cent) were aged between 14 and 24 years. Women were light (on average 41.0 kg) and short (on average 151 cm). More than half of the population appeared to be chronically malnourished (in terms of Body Mass Index), 13 per cent of them severely. Of these 186 women, 175 gave birth to 176 live babies (including one set of twins) and the other eleven had a stillbirth.

### **Results**

The women's diet appeared to be deficient in several kinds of nutrients. Most respondents did not even achieve the recommended levels of energy, protein, iron and calcium for non-pregnant women. The average daily energy intake during pregnancy was 1,700 kcal, and was observed to decline throughout pregnancy. Women who were malnourished before pregnancy turned out to be less inclined to reduce energy intake during pregnancy than women who were better nourished before they became pregnant. For the latter group, energy intake

fell from 1,811 kcal in months 5/6/7 to 1,629 kcal in the last two months of pregnancy. Malnourished women remained at a level of around 1,650 kcal.

Women gained an average 6.4 kg during pregnancy. Changed energy intake was not found to correlate with weight gain, or the development of skinfold thickness and mid-upper-arm circumference. The average birth weight for all live births amounted to 2,646 grammes. 26.1% of the babies had a Low Birth Weight. No relationship was found between change in energy intake and birth weight of the child.

The women themselves reported that the main reasons they did not eat more were related to feelings of well-being of the women themselves, not the child. Eating more was related to physical problems like indigestion, acidity, vomiting, feelings of heaviness in the stomach because both the child and food were there, breathlessness, tiredness, not being able to work and walk freely, all summarized by the local concept *ekase*: physical problems arising from an overloaded stomach. In the second instance, eating less or normal amounts was positively related to the foetus as well: the child was believed to have more space in the abdomen to move, to develop well and even to grow bigger. Eating more implies less space in the abdomen for the child to grow, causing the child to be less-developed or even smaller.

In addition, the study describes:

- the local circumstances in which women live: their economic conditions, social status and cultural factors affecting their health status;
- beliefs and practices regarding the quality of food intake during pregnancy (e.g. avoidance of heating food which is related to the medical system Ayurveda; the fact that almost no extra food is added during pregnancy; perceived effects of food intake during pregnancy on health condition of the child);
- beliefs and practices regarding other proper behaviour during pregnancy (e.g. the effects of pollution);
- use of antenatal services (prenatal check-ups, supplementary feeding, iron tablets, tetanus injections);
- circumstances during delivery (e.g. more than 80 per cent home births with the help of a dai or family member, hygiene circumstances);
- use of health care during delivery and post-partum period.

## **Dissemination of results**

The HERA research programme stresses that research should not only lead to knowledge, knowledge should also be utilized to improve the health status of people. In this research project, dissemination of results consists of:

- i. translation of a popular version of the book into Kannada, the language spoken in the state Karnataka where the study was conducted;
- ii. development of health educational material.

i) The abridged version of the book in Kannada focuses on the general public, governmental institutions and local NGOs working in the field of health education for Indian women. In this way, the results of scientific research 'return' to the people concerned. First, the book was adapted to the general public in English, in cooperation with a local journalist, Mrs. Nandita Mudbidri. This popular English version of the book then was translated into Kannada by Ms. Meera Bijapur, Ms. Pratibha Ritti and Mr. P.R. Acharya. The two books are published by the commercial publisher Manohara Grantha Mala in Dharwad (Hutter 1998b,c). Free copies are to be provided to governmental institutions and NGOs working in the field of mother- and child health. A copy of the cover of the Kannada version is included in this report (see Figure 3.1).

ii) The Kannada translation is presented as a foundation for health and nutrition education. The educational part was carried out in collaboration with the local NGO, the India Development Service (IDS) in Dharwad. IDS was involved in the earlier PhD fieldwork as well and has a lot of experience with educational activities, incorporating local circumstances and cultural concepts therein.

After an initial period of meetings and intensive discussions between IDS (Mrs. Shyamala Hiremath and Ms. Mary Goudar) and the researcher about the translation of scientific results into action, several scripts for series of flash cards and puppet shows were developed.

The basic idea is that, if local circumstances and local concepts as used by women themselves are known and referred to, health and nutrition education will be more effective. This idea is clearly reflected in the flash cards and puppet shows which deal with topics such as nutrition during pregnancy, the concepts of heating and cooling, the period after delivery, the influence of the immediate social environment on pregnant women (in the puppet shows). The final result consists of nine series of flash cards, one series of photographs aiming at traditional birth attendants on how to cut the umbilical cord and two puppet shows.

Figure 3.1 *Cover of the Kannada translation of the dissertation: aulu hotteyalli adaale (she is with a stomach)*

Examples of the dissemination of research results are provided in Section 4.

Since November 1997, the series of flash cards are used by Village Health Workers (VHWs) of IDS in a health educational campaign in the villages where the research was conducted. The VHWs visit women who are pregnant or have delivered, and provide the information in one of the series. The campaign will continue for a period of two years, up to November 1999. The puppet-shows are implemented in the villages by a team of workers of IDS, in the evening times. The photographs are used in training sessions with traditional birth attendants. In addition, all health education material is used in training of health workers by IDS in other regions.

### **3.2 Reproductive health and child spacing in rural South India; contribution to a reorientation of population policies in India**

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Co-operation:	PRC Groningen Population Research Centre, Institute of Economic Research, Dharwad, Karnataka
Funding:	KNAW (Royal Dutch Academy of Arts and Sciences), Amsterdam IDPAD (Indo-Dutch Programme on Alternatives in Development), The Hague
Main researchers:	Dr. Inge Hutter, dr. P.N. Mari Bhat, dr. B.M. Ramesh, prof. dr. Frans J. Willekens
Period:	January 1996 - January 2000

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This project is a continuation of the former, longitudinal, PhD research on nutrition and health of pregnant women (Hutter 1994) conducted in the period 1989-1994, in eleven villages in Dharwad *taluka*, Karnataka, India. The present project is being conducted in the same research villages. In addition, project 3.3 is related to the theoretical basis of this project. Further development of the model of mother's reproductive and child's survival career, as worked out in project 3.4, is part of the project as far as the state of Karnataka is concerned.

#### **Background: reproductive health in India**

In this research project, we are studying the reproductive health of Indian women. In India, women's status is largely determined by their reproductive role. Their status is defined at birth: the birth of a boy is celebrated in much more

elaborately, with special sweets, than the arrival birth of a girl. Nowadays, with the increasing incidence of sex selective abortions on female foetuses, one can even say that status of Indian women is defined from conception onwards. The few cases of female infanticide which have been reported lately (see e.g. Rajaretnam 1992), are another extreme expression of the existence of son preference in Indian society.

In addition, the sex ratio of 929 females per 1,000 males (census 1991) indicates excess mortality among women. In early childhood, excess female child mortality is related to the fact that girls receive less food, less health care and less attention (Miller 1981; Srinivasan and Kanitkar 1989; Basu 1989; UNICEF 1991). A large number of the female deaths occur in the reproductive age. The maternal mortality rate in India is, realistically, estimated at 800 per 100,000 live births (Jejeebhoy and RamaRao 1992). Given a total fertility (TFR) of 4 to 5 (in the 1980s for India) and a maternal mortality ratio of 500 per 100,000 live births, the lifetime risk of dying from pregnancy or childbirth related causes for an Indian woman is 1 in 27 (Royston and Armstrong 1989). Even then, it should be noted that these mortality figures only partially reveal the extent of the total of health problems related to pregnancy and childbirth. The majority (75 per cent) of maternal deaths can be attributed to direct or obstetric causes, such as haemorrhage, sepsis, abortion and toxaeimias. An important indirect factor is anaemia, which accounts for 15-20 per cent of maternal deaths (Mathai 1989).

### **Child spacing and child survival**

The survival of both women and children is negatively related to childbearing at the fringes of the reproductive period (under 18 and over 35 years of age), to high parity (four plus) and short birth intervals (less than 24 months). Child spacing is one of the main factors that could contribute to better health status and survival chances for children; for the preceding child as well as the new baby. The chance of survival for children born after a birth interval of one year or less is half or even less than for children born after an interval of two years or more (Kusum 1983, WHO 1984, Isaacs and Fincancioglu 1989, Hobcraft *et al.* 1985). Similar results, i.e. higher survival chances for children born after a longer birth interval, have been reported for India. (Nath *et al.* 1994, Gujral *et al.* 1992, Dhanalakshmi 1993; Bhargava *et al.* 1991; Kost and Amin 1992).

### **Child spacing and maternal depletion**

The effect of birth spacing on the health status of mothers, however, is much less emphasized. Studies often cite the prevalence of nutritional anaemia (Gopalan



1989, UNICEF 1991), a disorder which is aggravated during pregnancy and delivery and perpetuated by repeated and rapidly succeeding pregnancies. Subsequently, these studies usually measure the effects of nutritional anaemia in terms of negative consequences on the health of children. However, the health status of women deserves much more attention for its own sake, rather than as a minor appendix to mother and child health studies.

Although a woman's general health is affected by close spacing, particularly in circumstances of poverty, the extra risk of dying 'has seldom been quantified' (WHO 1991, p.6). Only one study has been reported: in a study in Honduras by Castellanos *et al.* (1990 cited by WHO 1991), women with a birth interval of less than one year faced twice the risk of death compared with those with longer birth intervals.

A short birth interval, i.e. less than 24 months, is seen as one of the factors indicating a pregnancy at risk (WHO 1991). The lack of adequate spacing between pregnancies increases the risks to the mother as she does not have time to recover from the extra physical demands made upon her by pregnancy and lactation (Population Reference Bureau 1986; WHO 1991; DGIS 1994). That is, a short birth interval might affect the 'maternal depletion syndrome'. An estimate of maternal depletion is nutritional status indicated by Chronic Energy Deficiency (CED) (see also James *et al.* 1988; Kusin *et al.* 1992; 1994a,b). CED is estimated by the Body Mass Index (BMI) (weight / height<sup>2</sup>).

In the former 1990-1992 research, the majority of women in the study population appeared to be chronically malnourished even before they became pregnant. Of all 186 women, 13.0 per cent were severely malnourished (BMI  $\leq$  16.0), 18.3 moderately malnourished (16.0 < BMI  $\leq$  16.9) and 27.8 per cent mildly malnourished (16.9 < BMI  $\leq$  18.5). Only 40.9 per cent were not malnourished. In addition, the 62.3 per cent of women had an Hemaglobine-level of  $\leq$  11 gr./dl (which is the cut-off point for anaemia used, for example, by UNICEF in India) in the last trimester of pregnancy, and 18.5 per cent were severely anaemic ( $\leq$  10 gr./dl). Moreover, almost half of the women had birth intervals (defined as the interval between any pregnancy outcome) of less than 24 months. One of the conclusions of the study therefore referred to the importance of focusing (in research and policy) on the *prepregnant* nutritional status of women (Hutter 1994).

### **Shift in Indian family welfare policy**

This focus on spacing of children coincides with the shift in the family planning programme as pursued by the Government of India (Ministry of Health and

Family Welfare 1992). Since its inception, the Indian Department of Family Welfare has relied disproportionately on sterilization as a method of contraception. IUDs were introduced in 1965, social marketing of condoms was propagated in 1967 and the pill was available from 1977 onwards, but in spite of these provisions the actual use of these spacing methods was limited (Ministry of Health and Family Welfare 1991; Government of India 1992; Raina 1994). The National Family and Health Survey (NFHS) of 1992/93 indicates that only 6 per cent of currently married women used any modern spacing method, while 30.7 per cent of the couples were sterilized. Since sterilization is a non-reversible method, it is only an option for couples who do not want any more children, which in India is usually not before three children have been born. India's awareness raising approach has focused on the 'two is best' family norm, but the average desired family size is three children, i.e. two sons and one daughter. Son preference plays an important role: couples will continue to have children until they have at least have one son (Family Welfare Yearbook 1990-1991) (see also Hutter *et al.* 1996).

### **Research questions**

The project views child spacing behaviour from the process-context approach and focuses on (in short):

- what is the actual child spacing behaviour (length of birth intervals, and values of proximate determinants such as post-partum amenorrhoea and abstinence, contraceptive use and abortions)?
- what are the perceptions and beliefs of Indian women themselves regarding birth intervals and proximate determinants?
- what are the related perceptions and beliefs regarding fertility and sexuality?
- in which economic, social and cultural context does child spacing behaviour take place? The reproductive career is related to the working, educational, family building careers, etc.

### **Methodology**

Both quantitative and qualitative research methods are applied:

- secondary data analysis: the NFHS of Karnataka;
- a census in the 11 research villages; actually an update of the 1990-1992 study;
- a survey on birth intervals and pregnancy histories, perceptions regarding proximate determinants and status of women;
- in-depth interviews with women who are using modern spacing methods and those who don't use them; information is gathered on the decision making

- processes, beliefs about fertility and sexuality;
- in-depth interviews with men about the same topics (the so-called male perspective);
- focus group interviews with groups of women, e.g. the Mahila Mandals (women's groups);
- key informant interviews with health workers, traditional birth attendants etc;
- a census among institutions working in the field of reproductive health: Dept. of Family Welfare, and NGO's such as the Family Planning Association of India (FPAI).
- a follow-up of the 186 women and their children included in the study population of the 1989-1994 research.

### **Progress of the research project**

At the time of writing (September 1998) the following activities have been completed:

- a background paper to the project (Hutter 1998).
- an interim report on the census (Rajeswari and Hutter 1998).
- an interim report on the survey, in preparation (Rajeswari, Hallad, Ramesh and Hutter).
- fieldwork with in-depth interviews (female and male perspective) has been completed. Interviews are to be worked out.
- secondary data analysis and the model of the mother's reproductive career and child's survival career for Karnataka is worked out by a MSc student in demography (De Jager 1997) and staff of PRC (see project 3.4).
- a review of information provided by institutions such as the governmental Department of Family Welfare and the NGO, the Family Planning Association of India (FPAI) has been conducted by a MSc student in demography (Goudberg 1998).

### **Dissemination of the results**

The results of the research will be translated into action as an educational campaign. The NGO the Family Planning Association of India (FPAI), Dharwad branch, has expressed an interest in organizing a campaign on the basis of the research findings. FPAI Dharwad-branch (dr. M.N. Tavargeri, vice-president FPAI Mumbai and former president Dharwad-branch; Mr. S.V. Kulkarni) and FPAI Mumbai (Mr. V.M. Koliwad) are already actively involved in the research project. A proposal for the campaign has been prepared by the three institutes, funding has yet to be found.

### 3.3 Reproductive health: theoretical framework on fertility behaviour

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Cooperation:	PRC Groningen / NIDI The Hague
Main researcher:	Bart de Bruijn
Funding:	University of Groningen / NIDI
Period:	May 1989 - January 1999

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Another basis for the research programme is the project of De Bruijn (1998). It presents an in-depth elaboration of the process-context approach which serves as the basis for the whole research programme of PRC Groningen. Its link with project 3.2 is the case study on fertility and family planning in India.

#### **Background**

Within the field of human sciences, demography has a well-established position in terms of descriptive abilities and statistical and mathematical accomplishments. These accomplishments are, however, not met by an equally sophisticated theoretical foundation. This status of demographic theory has serious repercussions on the ability to provide the underpinning for efficient and effective means for policies and programmes on population and health. Quantitative analysis, no matter how elegant and sophisticated, is not sufficient for a mature science that is capable of understanding demographic reality and demographic change, and even less of conceiving conditions for effective programmes intervening in patterns of individual behaviours. Such capabilities can only emerge from a body of explanatory theory which identifies and interprets the underlying structure of causal mechanisms. In turn, these conceptualisations crucially depend on realistic assumptions with regard to human nature.

Although the discipline of demography offers a number of valuable theories and conceptual approaches, these are usually partial explanations which lack sufficient integrative strength and which often do not reflect recent theory development in neighbouring social and behavioural sciences. The aim of this project, therefore, is to contribute to a conceptual basis of social demography by providing a theoretical approach for the study of demographic behaviour. Within this general aim, special emphasis is placed on fertility behaviour. The approach conceives of an interpretative framework which integrates existing theories both from within and outside demography and which is based on a realistic 'model of man' for the discipline. As a result, the theoretical approach is expected to

provide better understanding of demographic behaviour and a scientific underpinning of population policies and programmes on family planning and reproductive health.

### **Research question**

In the attempt to formulate a general interpretation model for reproductive behaviour, the main challenge is to identify and explicate the relevant concepts and mechanisms. This, in turn, depends on basic behavioural assumptions such as those with regard to structure and agency, freedom and determinism, behaviour and biology, time and change, and the limitations, capacities and drives of human beings. Bearing this in mind, the task of the formulation of a model for understanding fertility can be decomposed into three major theoretical considerations:

1. How can we conceptually represent the social *context* of reproductive behaviour and
2. what are the mechanisms involved in its role as determinant of individual behaviour?
3. What theory of *individual behaviour* can we formulate, which adequately represents individuals' contributions to fertility within a social context?
3. How can we incorporate a *dynamic* perspective which reflects the developmental processes that allow context and individual behaviour to change over time?

The integration of these separate conceptualisations, furthermore, will depend on the degree to which different concepts and approaches can be translated into the perspective of a common interpretative standard.

### **Methodology**

The study is based on an integration of insights - both theoretical and empirical - from a range of social and behavioural disciplines: demography, sociology, anthropology, psychology, economics, biology and philosophy. This interdisciplinary character allows for a comprehensive approach that is required to explain and fully understand reproductive behaviour.

The research followed a deductive approach, starting out from the formulation of basic behavioural premises and the requirements of social theory. This provided the starting points for the development of a conceptual model for the study and interpretation of fertility. An inventory of theoretical approaches on fertility prevailing in demography identified the strong and weak points of existing

conceptual backgrounds. Results of this evaluation were incorporated in the model and complemented with theoretical developments in other disciplines. Lastly, as an illustration of the approach, the resulting model was applied to India with regard to fertility, family planning and reproductive health.

### **Summary**

The study provides a contribution to the conceptual basis of demography, in particular as far as fertility is concerned. The result consists of an approach which offers insights into the processes underlying demographic behaviour as well as a scientific underpinning of population and health programmes. It adopts a dynamic micro-perspective which situates individual behaviour within the context of the social environment and within the process of life-course development. This focus on the individual is considered a crucial theoretical requirement for the explanation of social demographic phenomena, since it is only at the individual level that we can answer the crucial question of *why* do the behaviours which produce demographic outcomes occur. Besides this theoretical consideration, the central position assigned to the individual also has a normative dimension, an aspect that reflects the conceptual shift from targets to people, which was adopted at the 1994 International Conference on Population and Development in Cairo.

The approach is characterised by a cognitive orientation which attributes an integrative function to the notion of information. Conceptualisations of life-course development, the social context, individual behaviour and their interaction mechanisms were elaborated in this line: individual behaviour is elaborated from a decision-making perspective; the social context is represented as an institutional structure that provides rules and meaning to the lives of individuals; and development is interpreted in the sense of cognition adaptive to the events and situations that people experience during their lives. Principles of learning provide insights into the mechanisms that allow people to change and that give shape to their (reproductive) lives within specific social contexts.

### **3.4 Model of mother's reproductive and child's survival career: an analysis of the NFHS (Kerala, Karnataka, Uttar Pradesh)**

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Cooperation: PRC Groningen

Population Research Centre, University of Kerala, Trivandrum, Kerala, India

Population Research Centre, IER, Dharwad

Funding: PhD Fellowship by University Groningen (partly)

Researchers: Sabu S. Padmadas (MSc); prof. dr. P.S. Nair

MSc students /Marlies de Jager, prof. dr. Frans Willekens, dr. Inge Hutter

PRC Groningen

Period: October 1996 - October 1999

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As mentioned above, in the theoretical framework, the context of reproductive health occupies a central role. The present project contributes to a comparative framework and to a better knowledge and understanding of the levels and determinants of reproductive health in India. Reproductive health in Karnataka is compared with that in Kerala and Uttar Pradesh. The project contributes to and

provides basic information for the development of the model of the mother's reproductive career and child's survival career, by analysing data of the NFHS of the different states. In addition to descriptive statistical analyses and traditional multivariate analyses, event history analyses are applied.

The National Family and Health Survey (NFHS) was conducted in 1992-93, under the authority of the Ministry of Health and Family Welfare (MOHFW) in New Delhi, by the International Institute for Population Studies (IIPS) in Bombay. Technical assistance was provided by the East-West Centre / Macro International. Funding was provided by USAID. The major objective of NFHS was to provide state-level and national-level estimates of fertility, infant mortality, the practice of family planning, maternal and child health care and the utilization of services provided to mothers and children.

The NFHS covered for 24 states of India and the National Capital Territory of Delhi, comprising 99 per cent of India's population. In all, 89,777 ever-married women aged 13-49 and 88,562 households were covered (IIPS 1995).

The present project of analysis of NFHS data is related to project 3.2 on child spacing in Karnataka and follows earlier research of PRC Groningen in

collaboration with the Netherlands Institute of Public Health and the Environment (RIVM) in Bilthoven on population modelling (see Van Vianen *et al.* 1995; Hutter *et al.* 1996).

## **Background**

In his review of reproductive health in India, Pachauri (1994) concludes that ‘the magnitude of women’s reproductive health problems have been recognized in India’, but that ‘there are wide gaps in knowledge regarding the levels, determinants, and consequences of women’s reproductive health in India (and) at present, not only are Indian studies on women’s reproductive health problems scanty, but most available data are from hospitals or clinics ..... *Population-based studies* should be undertaken ....’ (Pachauri 1994, pp.16-17; italics added). The NFHS is one of the few (and recent) population based surveys to include data on the current status of women *and* data on related past experiences (e.g. pregnancy histories), which were gathered retrospectively.

Differences in levels of reproductive health are very clear in India. To illustrate the differences between the states, some indicators of fertility, mortality and related socio-economic factors are given here. Total fertility for all-India amounts to 3.6, for Uttar Pradesh (UP) it is a high 5.2, for Karnataka 2.9, and Kerala it is below replacement level, even in the rural areas, i.e. 1.7. The proximate determinants of the low level of fertility in Kerala are women’s higher age at marriage and a higher Contraceptive Prevalence Rate (CPR). Infant mortality in UP amounts to a high 98 deaths per 1,000 live births, in Karnataka it is 67, while in Kerala it amounts to only 17 deaths per 1,000 live births. The most important background factor is female literacy which is 75 per cent in Kerala (44 per cent in Karnataka and 21 per cent in UP).

The three states illustrate the changes in child survival careers: from a high level of child mortality in Uttar Pradesh to a low level of child mortality with a relative increase in the importance of perinatal and neonatal mortality in Kerala. Karnataka is somewhere in between. In Kerala, etiology thus shifts from environmental factors affecting child mortality towards factors affecting morbidity and survival at the very beginning of life. In addition to ARI and neonatal care, the role of maternal factors during and before pregnancy is becoming increasingly important.

## **Research question**

The objective of the project is:

- i. to describe the level of reproductive health in different Indian states by the analysis of the data of the National Family and Health Survey (NFHS,



- 1992/93);
- ii. elaborate and refine the model of mother's reproductive and child's survival career (see e.g. Padmadas 1997b; De Jager 1997)
  - iii. identifying missing variables in the NFHS (see also Boersma 1996) and complete the information with secondary literature;
  - iv. to examine the relationship between reproductive health and different economic, social, cultural, demographic and other health variables;

### **Methodology**

The project focuses mainly on the analysis of data from the National Family and Health Survey (1992/93). The NFHS included the following indicators of reproductive health: pregnancy histories, number of live births, stillbirths, spontaneous and induced abortions, birth intervals, duration of breastfeeding, contraceptive use, continuation or discontinuation of contraceptive use, knowledge about contraceptives, knowledge about AIDS, level of anaemia, women's calorie intake, use of antenatal services, number of vaccinations etc.

### **Progress of the research**

The project consists of analysis of NFHS of Kerala, Karnataka and Uttar Pradesh, which are being conducted by one PhD student and two MSc students in demography.

*Kerala* The major part of the project focuses on Kerala, where the research is conducted by Sabu S. Padmadas of the Population Research Centre at the University of Kerala, Trivandrum, India. In a so-called sandwich-construction (PhD fellowship from Groningen University), the researcher worked in the Netherlands for one year, from November 1996 - September 1997, where he took courses and helped further specify the research proposal. Given the position of Kerala in the health transition, i.e. perinatal and neonatal mortality playing a relatively more important role (see above), the major focus of the project is 'The reproductive characteristics of the mother and dynamics of child survival'. The researcher returned to his country to conduct the research, and is to visit the Netherlands again in the final stage of writing. The project on Kerala is scheduled to be concluded in November 1999.

*Karnataka and Uttar Pradesh* For Karnataka the objectives were similar to those in Kerala, although less conclusive, as the study was conducted by a MSc student in demography. In the first instance, this part of the project focused on gathering secondary data in Karnataka itself (De Jager 1997). In a continuation (i.e. as a member of the PRC staff), analysis of NFHS data is being conducted by

the same person (November 1997 - January 1998) (De Jager and Hutter 1998). The project in Uttar Pradesh was conducted by a MSc student in demography and focused more on the modelling aspects of child survival (Gjaltema 1997).

### **3.5 Adolescents' reproductive health in rural Bangladesh**

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Cooperation:HERA

International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)

Dhaka, Bangladesh;

Funding: DGIS (partly)

Researchers:Alinda Bosch, NIDI

Mrs. Lufta Begum, ICDDR,B

CoordinatorsDr. Inge Hutter, HERA; Dr. J.K.S. van Ginneken, ICDDR,B, Dr. Abbas Bhuiya, ICDDR,B.

Period: November 1996 - December 1997  
January 1999 - December 2002

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#### **Background**

Within the general framework of reproductive health, the project described here will pay special attention to reproductive and sexual health in adolescence (also called youth or puberty), the transition stage between childhood and adulthood, generally identified as the period between ages 10 and 19. In 1995, more than half the world's population was under the age of 25, with adolescents already numbering over one billion. This number is expected to increase by 22 per cent worldwide, to 1.25 billion in 2010 and 1.3 billion in 2020 (UNFPA 1997, p. 2).

Adolescents have long been largely neglected in both health and family planning programmes, as they were not considered to be sexual entities until marriage. This lack of attention is in stark contrast with the importance of adolescence as a stage in life, the very stage of life in which girls and boys learn and internalize behavioural patterns that will stay with them for the rest of their lives, including the reproductive period. Nowadays, adolescence is even recognized as a specific stage in life, characterized by 'gradual yet dramatic transitions, socially, physically as well as psychologically' (UNFPA 1997, p. 3). As the WHO (1995, p.13) concludes: 'the behaviour patterns established in adolescence, highly influenced by the adult world, are of the immense importance to an individual's life span and to public health as a whole'. It is above all >the basic human right of every individual, woman or man or adolescent, to make an informed choice and decision about her or his own fertility' (Kabir 1997, p. 6).

In Bangladesh, about 30 per cent of the population was aged between 10 and 19 in 1995. As in many other countries, there is virtually no information on adolescent health in general in Bangladesh, let alone information on reproductive health for this group (Ross 1996, p. 9). We know of practically no descriptions of adolescents' use of health services and their sexual and reproductive knowledge, practices and intentions. In view of Baldry's (1995, p.4) conclusions that, in order to develop policies and strategies to implement programmes that fit with prevailing religious, cultural and community norms and values, more information is needed, the research project proposed here aims to fill this gap by gathering information on the reproductive and sexual health of Bangladeshi adolescents and to disseminate the research results among them.

### **Research question**

The characteristics of the adolescent and of his/her environment (or: *context*) are central to this project. In most health-related studies the focus is cross-sectional, i.e. groups are compared in terms of their current health and exposure status. The disadvantage of such an approach is that the health and exposure status are assessed simultaneously, while the origins of diseases and impaired health often go back to months or even years before. Chronic malnutrition during childhood, for instance, delays the adolescent growth spurt, which may in turn have an impact on reproductive health. Instead of focusing solely on current *contextual* factors, the differences and similarities in the reproductive health status of a group of adolescents are assessed by taking into account *a life course perspective*.

The project will be conducted as a *longitudinal* study, which in addition to the embedding context, will also take the time context into account. Conditions in every sequential stage of life are built on conditions in previous stages. Health is considered to be the outcome of genetic heritage, the conditions of the adolescent gestation and the life history since birth (Caselli *et al.* 1990, p. 3). Data collected by ICDDR,B offer an unique opportunity to conduct such a longitudinal study on adolescents' reproductive health. With his or her 'bio-demographic characteristics', the adolescent forms 'part of a *context* with which he or she interacts', in the present as well as in the past (Caselli *et al.* 1990, p. 5). Moreover, adolescents' reproductive and sexual health has important implications for their future stages in life. Individual life histories and information about the nutritional status in the past can give us more insight in the current reproductive health status of adolescents. In sum, the proposed project is based on the following idea:

*The reproductive health status of current adolescents is not only determined by present circumstances, but also by circumstances in the past, that is, the health and nutritional status and the socio-economic, demographic, ecological and cultural conditions during childhood. In turn, the health conditions of the under-five's can not fully be understood without taking the health and socio-economic status of the mothers into account.*

## **Research objectives**

### *1. Quantitative research*

The research aims at gaining an insight into the reproductive and sexual health status of adolescent men and women in rural Bangladesh. Adolescent reproductive health will be studied from a *life course* perspective using the *process-context* approach. It is seen as a resultant of past nutritional status and health-related behaviour - particularly during childhood - and situated in the socio-economic, demographic and cultural *context*.

### *2. Qualitative research*

By describing the expectations and aspirations of adolescents with regard to their reproductive career, the project depicts a more holistic image of the period of adolescence.

### *3. Research for action*

In addition, research should not only lead to knowledge, but this knowledge should also be implemented in order to improve the health status of people. The results of the proposed research project will forward recommendations in order to meet the adolescents' needs, expectations and aspirations. It will provide guidelines for the development of services and education in the field of general, sexual and reproductive health for adolescents. Information, Education and Communication (IEC) activities will be initiated on the basis of the results of the research (see further expected output).

The research is to be conducted by a Dutch and a Bangladeshi researcher in co-operation, but each of them taking care -independently- of one part of the research.

## **Research questions**

The study will centre upon the following research questions:

- 1 What is the reproductive health status of adolescents in rural Bangladesh?*
- 2 Which factors from the present socio-economic and cultural context and individual determinants influence this current status?*
- 3 What was the reproductive health condition of these adolescents during childhood?*

- 4 *How was this condition influenced by factors from the socio-economic, ecological and cultural context at that time, and how was it influenced by the adolescents' mothers?*
- 5 *How can the health status of adolescents during their childhood be related to their current general and reproductive health status?*

Although the focus of this research is thus mainly on adolescents' reproductive health, the health status of any children of adolescents will also be taken into account. An additional research question is therefore:

- 6 *How can the reproductive health status of current adolescents be related to the nutritional status of their children?*

As current adolescents' reproductive health will also be studied in relation to the health status of their mothers (see research question 4), the result will be a comparative overview of the health status of three generations of a Bangladeshi population. If we are to compare three generations, we shall have to take developments in the socio-cultural *context* into account. In today's rural areas of Bangladesh, more young girls are sent to school than a decade ago, giving them more room for childhood, comparable even with that for boys (Blanchet 1996, p. 57). This might mean that the definition of what adolescence is, and what is proper in this period of life for girls and boys is changing. Differentiating for the cultural and social *context* of present adolescents' reproductive health, the following research sub-questions can be formulated:

- 7
  - a. *What perceptions, aspirations and expectations do present adolescents (both girls and boys) have regarding marriage, their reproductive career, sexuality, their educational and working career?*
  - b. *What are the related perceptions, aspirations and expectations of the immediate environment, i.e. the family and peer groups, but especially the mothers?*
  - c. *What are the differences, as perceived by mothers, between their own adolescence and that of their daughters?*
  - d. *For adolescents who already have children: what are their expectations for their children?*
  - e. *Summarizing: what are the changes in the definition and perception of the period of adolescence, for both boys and girls, in Bangladeshi society in general, and in Matlab in particular?*

All questions take into account the differences between boys and girls, and between several socio-economic classes and religion.

## Methodology

In order to meet the demands posed by the research questions, the project necessitates a *multi-level approach* of data collection. Data will be collected on individual, household as well as community level, using both quantitative and qualitative methods. In contrast to a cohort study, in which the health status of a group with different levels of exposure is assessed over time, this information is assessed on an individual level in a longitudinal study. The central question is ‘What will happen or has happened to an individual over time?’ A *longitudinal* study depends on information on the health and nutritional status of a specific group of respondents for at least two moments in time, i.e. data on current adolescent practices and data collected during their childhood. The information pertaining to their childhood can be retrieved from existing databases, but information on the current general and reproductive health status of adolescents will be collected in a new survey (*quantitative* research) and via in-depth interviews (*qualitative* research).

Childhood data will be retrieved from D’Souza and Bhuiya’s ‘Pilot study on socio-economic status and its association with nutrition and morbidity’, conducted among under-five’s in five villages in Matlab in 1981. This study was selected on the basis of the following criteria: (i) the study was conducted in 1981, so the subjects will be aged between 17 and 22 years in 1998; (ii) the study population is considerable, i.e. 2,013 children and their, approximately 1400, mothers; and (iii) the collected information provides possibilities to assess the health status by using data on nutritional indicators, like weight and height for age and mid-upper arm circumference, and data on morbidity. The database of this study has been explored and proved to be suitable for the proposed study.

The group of adolescents will consist of the children included in D’Souza and Bhuiya’s study in 1981. Follow-up data on the health and nutritional status of current adolescents as well as on their expectations and intentions with regard to their reproductive career will have to be collected in a new survey and through *qualitative* methods. As each individual living in the Matlab area has a permanent registration number, i.e. the **Registration IDentification** number (**RID**), which was also used in the Special Study, as well as in other Matlab databases, it is possible to trace the current adolescents. This ability to link high-quality information on a large population over time makes the Matlab data

unique. The complete demographic life history of every individual born in the research area has been recorded.

With respect to the research questions, it should be noted that the current general and reproductive health status of adolescents (research question 1), the socio-economic factors, cultural *context* and personal characteristics (research question 2), as well as information about any children of adolescents (research question 6), will be assessed by a survey. Information on the health status of these adolescents during their childhood (research question 3), and socio-economic and cultural conditions at that time (research question 4) were reported on in the study by D'Souza and Bhuiya. In addition, analysis of secondary data, e.g. from the databases of DSS (Demographic Surveillance System), RKS (Record Keeping System) and SES (Socio-Economic Survey), might offer more possibilities to assess their health and nutrition, as well as socio-economic, demographic and cultural conditions at that time. On the basis of the analyses, it is possible to define the link between the health and nutritional status at both stages (research question 5).

*Qualitative* research methods will be applied to find out about the perceptions, aspirations and expectations of adolescents themselves, those of the people in their immediate *context*, and the changes in the definition and perception of the period of adolescence (research question 7). This part of the study will consist of in-depth interviews, narrative life histories, participant observation, focus group interviews and key informant interviews. Respondents will include:

- a number of the adolescents in the survey living in the five research villages; the sample will be diversified for background factors such as sex, socio-economic class, religion;
- the important people in their immediate *context*: family and peer groups, especially their mothers.
- a small selection of the respondents from different backgrounds, for and with whom narrative life histories, or case studies (focusing especially on socialization processes -from child to adolescent to adulthood) will be conducted.

### **Progress of the research**

Orientation visits have been paid to ICDDR,B, in order to discuss possible topics of joint reproductive health research. During one of these visits, three relevant topics were selected. A feasibility study was conducted from March to June 1997, and adolescents' reproductive health in rural Bangladesh was selected as

topic of research. In June 1998, the results are a working paper (Bosch and Hutter 1998) and a research proposal, on the basis of which funding is being sought.

### **3.6 Reproductive Health Initiative (RHI) in Asia; regional dimension**

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Project: EC / UNFPA

Cooperation: HERA

London School of Hygiene, Centre for Population Studies  
(Ambegaokar and Cleeland)

Researchers: Dr. Frank Eelens, Bart de Bruijn, Dr. Inge Hutter

Period: April 1997 - April 2001

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On invitation of the European Commission (EC) and UNFPA, HERA participates in and proposed to contribute to the Regional Dimension of EC/UNFPA's Initiative for Reproductive Health in Asia (RHI).

In the beginning of 1997, the EC and UNFPA launched a special programme in the Asia Region to strengthen reproductive health activities and services with the involvement of non-governmental and non-profit organizations and foundations to push forward the ICPD / POA agenda. The total budget for the programme amounts to 30 million ECU. Countries selected were Bangladesh, Cambodia, India, Laos, Nepal, Pakistan, and Vietnam.

The objectives of RHI, in order to enhance and accelerate the implementation of the ICPD, are:

- i) development of local capacities for improved reproductive health management and its integration within PHC (Primary Health Care) for better quality services;
  - ii) promote gender equity and equality in health care services, including sexual and reproductive rights; develop actions targeted at vulnerable groups and most deprived populations; and
  - iii) ensure coherency and complementarity with national policies / agencies.
- (EC / UNFPA 1997a,b).

The objectives of the Regional Dimension of RHI are:

- i) introducing indicators and base line data to monitor and measure progress;
- ii) helping NGOs to introduce and / or strengthen gender issues and reproductive rights in their respective projects;



- iii) assisting NGOs to meet the highest standards, strengthen / build the capacity of local NGOs to implement quality reproductive health services;
- iv) ensuring communication linkages between national NGOs and EURO NGOs, allowing sharing of experiences between the 7 countries and the

South-East Asian countries that are not part of the first phase of the Initiative. (EC / UNFPA, 1997b).

Activities of the Regional Dimension of RHI thus focus on:

- i) Data collection, research and monitoring / evaluation;
- ii) Gender equity and reproductive rights;
- iii) Training of national NGOs;
- iv) Other areas.

HERA participates, together with London School of Hygiene, Centre for Population Studies, in data-collection, research and monitoring and evaluation. Several preparatory meetings have been taken place, an initial proposal by HERA and London School has been formulated.

### **3.7 Pregnancy outcomes and child survival in transition**

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Researcher: Maaïke den Draak, PRC

Guidance: prof. dr. Frans Willekens, dr. Inge Hutter

Period: January 1998 - December 2001

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This project follows different research projects of PRC Groningen (in co-operation with other research institutes), not only those included in HERA such as the projects on reproductive health in Karnataka and Kerala (Sections 3.1, 3.2 and 3.3) but also those by Van der Veen on “Pregnancy outcomes in The Netherlands” and Medina on “Population projections in Mexico”.

#### **Background**

Referring to the model of the mother’s reproductive career and the child’s survival career, the project’s background is the following.

*Mother’s reproductive career.* Technological developments and changes in values and norms result in a growing ability of individuals and couples throughout the world to determine, with increased accuracy, how many children they have and when children are born. As improved diagnosis of and interventions in biological processes from conceptions to births and during early childhood become within the reach of many, individual decisions and behaviour

will shape fertility and consequently population growth and composition.

*Child's survival career.* Present trends in child survival careers in developing countries show a gradual decline in child mortality and a relative increase in the importance of perinatal and neonatal mortality. Etiology thus shifts from environmental factors affecting child mortality towards factors affecting morbidity and survival very early on in life. In addition to the circumstances during birth, breastfeeding, ARI (Acute Respiratory Infections) and newborn care- maternal factors (during and before pregnancy) increasingly play a role. Maternal factors affecting child survival in the first months of life are: nutritional intake (rather than only food supplementation), energy expenditure (physical activities), nutritional status (e.g. weight gain, skinfolds) and morbidity (e.g. malaria) during pregnancy (see e.g. Kramer 1987).

Two regions approaching the final stage of the epidemiological transition, Mexico and Kerala in South India, have been selected.

### **Objectives**

The objectives of the project are:

1. to describe the development of the fetus in utero and the child during infancy as a multi-state / multi-stage process that is consistent with biological and medical literature on fetal development from conception to birth and builds on relevant micro-demographic models;
2. to reveal the extent of interventions in conception, fetal growth and early child development (classification of interventions);
3. to assess the demographic consequences of interventions.

Knowledge acquisition is oriented towards improvement of fertility forecasting and the development of fertility scenarios.

#### **4. Dissemination of results**

As mentioned above, the research programme emphasizes that research should not only lead to knowledge, but that this knowledge should also be utilized to improve the health status of people. Results of scientific research should ‘return’ to the people concerned, either through health education or campaigns (IEC activities), or courses for researchers from developing countries.

##### **4.1 Health education and campaigns**

The project described in Section 3.1 shows how results from scientific research ‘return’ to the people concerned through a translation of a popular version of the dissertation into the local language. The translation focuses on the general public, governmental institutions and local NGOs working in the field of health education for Indian women.

In addition, the Kannada translation is presented as a foundation for health and nutrition education. This was done in collaboration with the local NGO, the India Development Service (IDS) in Dharwad, resulting in nine series of flash cards, one series of photographs and two puppet shows which are implemented in the field by local health workers, working with IDS. The flash cards and puppet shows deal with nutrition during pregnancy, the concepts of heating and cooling, the period after delivery and the influence of the immediate social environment on pregnant women (in the puppet shows).

The basic idea is that if local circumstances and local concepts as used by women themselves are known and referred to, health and nutrition education will be more effective. That is, recognition of the fact that people have their reasons to do what they do, re-affirming the good habits they have and providing additional information, can provide a more solid basis to health services.

To illustrate the approach, some aspects of the health education are described below.

##### ***Case study 1: Hasi may***

The first case study refers to the series of flash cards on *hasi may*. As the research indicated, *hasi may* (literally meaning tender body) is the period after delivery, ideally lasting for 3 months, in which special care is provided to both the wet mother and the child. Mother and child are separated from the family, sometimes in a special room, sometimes separated from the others by curtains made from blankets and rice bags. The wet mother stays on a bed (*horasu*), especially made for deliveries on an -astrological- auspicious day. Her child sleeps in a hammock, attached to the bed, which makes it easy to breastfeed on-

demand. (Breastfeeding of children is almost universal in the research area). A woman in *hasi may* should be kept warm, as she is believed to have lost her warmth and energy during delivery. Extra warmth is created by massages, hot bathes, curtains around the bed, eating 'heating' food, wearing the typical head scarf, and a fire coal (*benki*) under the bed. Also the child should be kept warm and gets hot bathes (sometimes too hot) and massages (sometimes very vigorous). Both mother and child are supposed to be vulnerable for negative influences from evil spirits. Women were found to reduce their water intake after delivery to one third: they believed too much of water would make their breastmilk more watery which would lead to an illness for the child.

These research results are used as the basis for the health education. The first flash card (see Figure 4.1) therefore shows a woman in *hasi may*. The following text (in local Indian English) accompanies the card:

1. Here is a woman sitting on a *horasu*, breastfeeding her child. She is in *hasi may*: she is wearing a head scarf. To keep the mother and child warm and also to ward off the evil eye and the evil spirit, bed sheets and bed coverings are kept hanging all around the cot. A cradle (*jolige*) made of gunny bag cloth is hanging below the cot for the mother to pick up the child easily. There is an iron basket with hot charcoal (*benki*) on the ground. For a massage before bath, a paste of neem leaves, garlic, oil and turmeric powder is used for the woman, and coconut oil for the child. Very hot water is used for bath. Drinking water is limited to one third of the daily quantity as it may make the breast milk watery.

During the first five days she is considered as untouchable. She is given soft and light food prepared out of wheat, vermicelli, rice, milk. This helps her to take rest, and recover from the tiredness after delivery.

So, first, the actual circumstances and beliefs of women themselves are referred to. Then, the good habits are confirmed, the not-so-good things discouraged:

- No doubt the mother and child require warmth. But the room needs to be well ventilated for them to get fresh air and light.... She must be given more water to drink. ....Massaging the body is good, it should be light. Vigorous massaging may break the tissues, the muscles. .... Too hot water for bath may cause suffocation ....The black spot on the face of the child (to warn off evil spirits) is harmless.

### ***Case study 2: food intake during pregnancy***

The results of the research indicate that the women's diet is deficient in several kinds of nutrients. Most respondents did not even achieve the recommended levels of food intake for non-pregnant women. Average daily energy intake was observed to decline throughout pregnancy. The women themselves reported that the main reasons they did not eat more were related to feelings of well-being of the women themselves, not to the child. Eating more was related to physical problems like indigestion, acidity, vomiting, feelings of heaviness in the stomach because both the child and food were there, breathlessness, tiredness, not being able to work and walk freely, all summarized by the local concept *ekase*: physical problems arising from an overloaded stomach.

In the second instance, eating less or the normal amounts was positively related to the foetus as well: the child was believed to have more space in the abdomen to move, to develop well and even to grow bigger. Eating more, implies less space in the abdomen for the child to grow, causing the child to be less-developed or even smaller.

In addition, women believed they should avoid items classified as being heating (which is related to the traditional medical system Ayurveda), such as papaya, meat, eggs, allopathic medicines, as it would induce an abortion. Given these results, the series of flashcards about food intake during pregnancy consequently starts as follows (Figure 4.2):

1. Kamala who is 8 months pregnant is sitting with her meal plate before her. She looks weak, tired and without blood. Her meal consists of little quantity of rice, and curry.

The card very clearly shows a pregnant woman, having a local name, dressed in a local saree, and wearing a black chain, the *mangala sutra*, indicating her marital status, sitting on a plank for eating, with her right hand, in a typical village kitchen. Typical kitchen utensils, the common stove, are shown. The story continues (Figure 4.3 and 4.4):

2. Mallamma is a well-wisher and advises Kamala to eat more as she has to provide for two lives, her's and that of the child. Kamala tells she can not eat well as the child is pressing against her stomach. Moreover she has to allow more space in the stomach for the child to grow well. If she eats more, she has *ekase*.

They discuss about the food items to be avoided such as papaya, meat, allopathic medicines as it is heating .....

Figure 4.1 A woman in *hasi may*

Figure 4.2 *Pregnant woman Kamalla sitting in her kitchen and not eating much*

Figure 4.3 *Malamma, a well-wisher, talking with Kamalla about -as they think- how much food and which food should be taken during pregnancy*



Figure 4.4 *The health worker visiting Kammalla*

3. The health worker who is on her routine visit listens to their conversation. She is concerned about Kamala's weakness and tells her to eat more food as often as she could, to meet her physical requirements and that of the child.

Both Kamalla and the health worker are shown, sitting on the typical verandah of a house in the village.

As usual, lady neighbours are gathering around, interested in what is going on.

The health worker then explains (Figure 4.5) what is the actual amount of food eaten by women during pregnancy (as has been indicated by the research): at the right side of the card, and compares that to the amount recommended by international standards (at the left side of the card). The card shows the number of rotis (pancake made of sorghum), curry in the locally used small vessels, amount of vegetables (here ladies fingers and brinjal, the vegetables most commonly available), amount of oil, milk, and sugar.

The card very clearly shows the results of the research: the number of rotis actually eaten is much lower than recommended, green vegetables are hardly eaten at all, less other vegetables. In addition, the diet lacks fat, milk, and sugar / jaggery.

#### ***Case study 3: care of new born, cutting the umbilical cord***

The series of photographs, made by Dr. Sanjeev Kulkarni, gynaecologist in Dharwad, aims at health education of traditional birth attendants. This particular photograph shows how to cut the umbilical cord (see Figure 4.6) and take care of the new born, by using a small piece of cloth or cotton to clean the child's nostrils and help the child breathing properly (Figure 4.7).

#### ***Case study 4: puppet-shows***

In the puppet-shows, the social environment, i.e. the important others, of pregnant women is addressed. Puppets with a different status (a pregnant woman, her husband a farmer, her mother-in-law, a health worker etc) are dressed up in the local Indian costumes. The show follows a traditional puppet plays, starting with a traditional folk song sung by all the participants of the play. A show manager takes a central position, cracking jokes and making fun in addition to the more serious health educational messages.

Figure 4.5 *A card indicating how much pregnant women actually eat and how much they should eat*

Figure 4.6 *How to cut the umbilical cord*

Figure 4.7 *How to improve the baby's breathing capacity*

One play discusses a situation in which a pregnant woman is very weak: she takes her meal only after all members of her family-in-law have finished their meals and thus does not get enough. Her husband and mother-in-law were not taking care of her during pregnancy: she had to work hard in the fields and at home. Her mother-in-law says that she too had to work hard when she herself was pregnant and why should her daughter-in-law get better care? The pregnant woman talks to a friend whose mother-in-law and husband actually did take care: the husband shared food with her, brought some special food and fruits from the market, the mother-in-law let her rest a bit more and work less in the fields. The play continues discussing these issues, and finally concludes that pregnant women should be better taken care of by the important others, especially the husband and mother-in-law.

### **Dissemination in other projects**

A similar approach is adopted in the child spacing project (Section 3.2) where the NGO the Family Planning Association of India (FPAI), Dharwad branch, intends to use the results of the scientific research. The FPAI Dharwad branch is already actively involved in the research project. The campaign will be monitored by researchers. Based on the campaign, there will be a reflection on the usefulness of the adoption of the theoretical framework of the process-context approach and application of the research methodology.

A similar approach will be adopted in the Bangladesh project.

### **4.2 Short course on reproductive health**

In addition, the scientific work in the research programme will be disseminated to developing countries through a course on reproductive health, which has been developed in co-operation with the Faculty of Medical Sciences of the Department of Gynaecology and Obstetrics at Groningen University. The course is meant for researchers and policy makers from developing countries and includes all the aspects of reproductive health as mentioned above.

A request has been received from the Karnatak University, Dharwad, India, to organize such a course in co-operation with the Institute of Economic Research (IER) Dharwad, and by the Institute for Reproductive Health Training and Research, Nairobi, Kenya. A short overview of the contents of the course is given below.

## **An interdisciplinary approach to reproductive health, a short course**

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Cooperation: HERA

Department of Gynaecology and Obstetrics, Faculty of Medical Sciences, Groningen University

Coordination: Dr. Inge Hutter, HERA; Dr. Albert Mantingh, Faculty of Medical Sciences, Groningen University

Funding: DGIS (provisionally)

Period: three weeks, 1998

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### **Objectives**

In the course, the process-context approach and the model of mother's reproductive career and child's survival career form the basis of all activities. The aim of the course is to offer a scientific basis for reproductive health policy making, programming, and project design and implementation. The course is interdisciplinary in character: it includes theoretical, demographic, medical, anthropological and methodological aspects.

### **Contents**

The course on reproductive health adopts an interdisciplinary perspective and includes:

#### *Theory*

The process-context approach:

- Motivation for behaviour and individual decision making.
- Context: historical, political, economic, social, cultural.
- The life course: the reproductive career and other related careers (education, family building, work).

#### *Demography*

- Levels of fertility, worldwide.
- Proximate determinants of fertility (Bongaarts and Potter model): marriage, contraception, postpartum amenorrhea and abstinence, abortion.
- Levels of maternal mortality, perinatal, neonatal, infant and child mortality, worldwide.
- Determinants of maternal, perinatal and neonatal mortality (see medicine).  
Determinants of infant and child mortality: models of Mosley and Chen, Van Norren and Van Vianen (malnutrition-infection syndrome).

Risk factors (constitution at birth, nutritional intake, susceptibility, exposure) and proximate determinants (reproductive pattern of the mother, nutrition during pregnancy; breast feeding, weaning, nutrition of the child; immunization; hygiene and sanitation; drugs and oral rehydration).

- The integrating model of the mother's reproductive and child's survival career.

### *Medicine*

Health risks throughout the reproductive career:

- Start of the reproductive career: health of adolescents (teenage pregnancies), safe sex (prevention of STDs and AIDS), sexual health (female genital mutilation).
- From chance and accidental pregnancies to pregnancies by choice. Reproductive technologies: contraception, menstrual regulation and abortion methods.

- Safe pregnancies and safe deliveries.

Causes of maternal mortality and morbidity: abortion, ectopic pregnancies, hypertension, haemorrhage, obstructed labour, puerperal sepsis; anaemia, viral hepatitis, etc.

Factors of importance during pregnancy: reproductive pattern (age, parity, birth interval or spacing) and previous obstetric history, nutrition, weight gain, activities, anaemia, other illnesses, antenatal care; factors related to low birth weight of the child.

Pregnancies at risk.

- Induced abortion: prevalence and related medical aspects.
- Dealing with infertility.
- Prenatal diagnosis and screening techniques.
- Health of infants and children: causes of perinatal, neonatal, infant, child mortality and morbidity.
- Risk factors, public health.

### *Social demography/anthropology*

- Individual decision making regarding reproductive health: Attitudes; beliefs and perceptions: the cultural context. Influence of others: the social context.
- Traditional reproductive methods.
- Medical decision-making regarding reproductive health.
- Socio-economic circumstances.
- Political context.



- Social structure and cultural meaning giving system.
- Status of women, empowerment of women.
- Use of health services such as Primary Health Care centres, other health services.
- Role of health personnel: health workers, nurses, physicians.  
Role of traditional birth attendants: circumstances during deliveries; postpartum care.
- Availability of and access to methods and services; unmet needs;
- Role played by services: approach adopted (e.g. cafeteria method).
- Information provided by health services: contents of health education and sex education.

### *Interventions*

- The 'at risk approach'.
- Basic needs of community, opinions of and cultural concepts used by local population.
- Reproductive technology.
- IEC activities; health and sex education.
- Evaluation of programmes.

### *Data collection and analysis*

- The research process: research question, theory, operationalization, definition concepts, questionnaire design, interview training, analysis, reporting.
- Data collection:  
Adoption of the process-context approach requires application of:
  - Survey methods.  
Analysis of surveys with SPSS; Demographic Health Surveys (DHS) and National Family Health Survey (NFHS), India. If possible, analysis of longitudinal data from Joint Project Machakos (JPM), Kenya, and Matlab, Bangladesh.
  - Qualitative, small scale research methods such as participant observation, in-depth interviews, focus group interviews.
- Data analysis:
  - Exploratory methods of data analysis.
  - Statistical models of reproductive health data.  
Event history analysis.

The course will include field trips to the Antenatal Diagnosis Unit at Groningen University Hospital (AZG); the Department of Medical Genetics at Groningen University; Rutgers Foundation, Stimezo; related research institutes such as NISSO, NIDI, Statistics Netherlands (Department of Health Statistics).

**For whom?** The course is designed for policy makers and researchers who address issues of reproductive health as part of their regular activities. The focus is on developing countries.

The group will consist of 20 people.

**Time** Three weeks

**Coordination:** Dr. Inge Hutter

HERA

Dr. Albert Mantingh

Department of Gynaecology and Obstetrics, Faculty of Medical Sciences, Groningen University.

Guest lecturers will be involved.

**Location** The course has a potential to be organized in different developing countries and The Netherlands as well.

**When** from December 1998 onwards

## **5. Future research projects and other activities**

### **5.1 Future research projects**

New research projects, based on or related to the present projects and incorporating the research aspects as mentioned above, are in progress or planned for the future:

- Research on reproductive health and child survival concentrating on the comparative perspective has been planned in cooperation with Dr. Marcos Ezra, Demographic Training and Research Center, Institute of Development Research, Addis Ababa University.
- A future project can be an elaboration of the Kerala project, in cooperation with the Population Research Centre, University of Kerala, prof. dr. P.S. Nair and Mr. Sabu S. Padmadas (MSc).
- Another future project can focus on abortion behaviour in Russia. A research proposal has been developed, in co-operation with Ulyanovsk branch of Moscow University, at the request of the WHO. In addition a background paper has been prepared and presented at a seminar of the IUSSP committee on anthropological demography, Kerala (to be included in Oxford University Press). Due to lack of funds, however, WHO could not provide financial backing. But the proposal, including all the aspects of reproductive health as mentioned above, still stands.

### **5.2 Other activities**

Other activities of PRC / NIDI related to reproductive health are the following:

- Technical support, training and research in reproductive health and fertility in rural fishing communities (comparison between six countries) for the FAO (Groenewold, NIDI).
- Training of MSc and PhD students (from the Netherlands as well as from Ethiopia, India, China, Mexico, Canada, Indonesia) in demography (Willekens).
- An invited paper for a seminar on induced abortion organized by IUSSP Committee of Anthropological Demography, Kerala, Trivandrum, March 1996 (Hutter).
- Technical support, backstopping rural development and changing fertility, Ivory Coast; Netherlands Israel Research Programme, NIRP (Groenewold, NIDI).

- Expert Group Meeting on Innovative Techniques for Population Censuses and Large-Scale Demographic Surveys (INNOTEC), The Hague, 22-26 April, NIDI / UNFPA (Eelens, Groenewold, Van Leusden, NIDI).
- Technical support to Socio-Economic Survey 1997, ICDDR,B, November 1996 (Eelens).
- Resource Flows project (UNFPA): development and maintenance of a system for collection, analysis and dissemination of information on both international and domestic financial resource flows for population activities (Eelens).
- An invited paper for a seminar on Cultural perspectives of reproductive health organized by IUSSP Committee of Reproductive Health, Rustenburg, South Africa, June 1997 (Hutter).
- Mission of the Royal Netherlands Embassy, evaluation of UNICEF's contribution to Child Survival and Safe Motherhood (CSSM) programme of the Government of India (October- November 1997) (Hutter).

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